

Limit Switches - Limit Type (PS31L) Plastic Body IP65



- Double Insulation
- Degree of protection IP65
- Reinforced UL-V0 thermoplastic fiber-glass body
- Positive Opening Operation \ominus
- Minimum Actuation Force/Torque
- Minimum Force to achieve Positive Opening Operation
- Precise operating points (consistency)
- Immune to electromagnetic disturbances
- Zb type contact blocks
- Current Ith = 10A
- Rated insulation voltage Ui = 500V
- UL, CSA, CE
- Conform with IEC 947-5-1 (EN 60947-5-1)

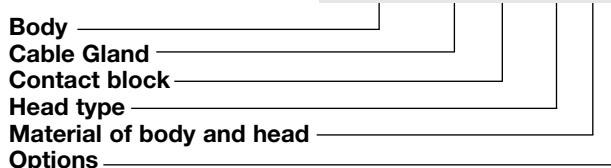
Product Description

They are developed in order to be used for following operations:

- Presence/Absence
- Positioning and travel limit
- Objects passing/counting

Ordering Key

PS31L-PS11RT-T00



Description of the key codes

Cable Gland

M	M20
P	PG13.5
N	1/2 NPT

Contact block

O11	1NO+1NC overlap slow(+)
S02	2NC snap(+)
S11	1NO+1NC snap(+)
T02	2NC slow(+)
T03	3NC slow(+)
T11	1NO+1NC slow(+)
T12	1NO+2NC slow(+)
T20	2NO slow
T21	2NO+1NC slow(+)
T30	3NO slow

Material of body and head

T	Thermoplastic body and Thermoplastic head
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Options

00	no option
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Head type

L3	Adj. square \square 3 (\square 0.12") steel rod LEVER
LA	Adj. \varnothing 3 (0.12") rod LEVER stainless steel rod
LB	Nylon actuator with stainless steel spring
LF	Adj. fiberglass rod LEVER \varnothing 3 (0.12")
LG	Adj. fiberglass rod LEVER \varnothing 6 (0.24")
LN	Adj. nylon rod LEVER
LP	Multidir. nylon actuator with stainless steel spring
LS	Stainless steel spring multidir actuator
LW	Stainless steel spring multidir actuator (cat Whisker)
LZ	Stainless steel spring actuator
P0	Metal plain PLUNGER
PB	Steel ball PLUNGER
PG	Steel roller PLUNGER + gasket
PH	Metal PLUNGER + gasket
PR	Metal roller PLUNGER
R1	Adj. LEVER with nylon roller
R2	Adj. LEVER with stainless steel roller
R3	Adj. LEVER with steel ball bearing
RB	One way LEVER steel ball bearing
RC	One way LEVER + gasket with steel ball bearing
RH	Plastic roller LEVER on metal PLUNGER (left)
RJ	Plastic roller LEVER on metal PLUNGER + gasket (left)
RK	One way LEVER stainless steel roller
RO	Roller LEVER steel ball bearing
RS	Metal roller LEVER
RT	Nylon roller LEVER
RY	One way LEVER + gasket with stainless steel roller
WO	\varnothing 50 (1.97") rubber roller LEVER
W1	Adj. LEVER with \varnothing 50 (1.97") rubber roller

Technical Data

Standards	IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL508 and CSA C22-2 n°14
Certifications – Approvals	UL – CSA
Air temperature near the device - during operation - for storage	-25°C...+70°C/-13°F...+158°F -30°C...+80°C/-22°F...+176°F
Climatic withstand	According to IEC 68-2-3 and salty mist according to IEC 68-2-11
Mounting positions	All positions are authorized
Shock withstand (according to IEC 68-2-27 and 60068-2-27) (1/2 sinusoidal shock for 11ms) no change in contact position	50g/1.76oz
Resistance to vibrations (acc.to IEC 68-2-6 and EN 60068-2-6)	25g/0.88oz (10...500Hz) no change in position of contacts greater than 100µs
Protection against electrical shocks (according to IEC 536)	Class II
Degree of protection (according to IEC 529 and EN 60529)	IP65
Consistency (measured over 1 milion operations)	0.1mm/0.004" (upon closing point)

Electrical Data

Rated insulation voltage U_i -according to IEC 60947-1 and EN 60947-1 -according to UL 508, CSA C22-2 n°14	500V (degree of pollution 3) A 600 Q600
Rated impulse withstand voltage U_{imp} (according to IEC 60947-1 and EN 60947-1)	6kV
Conventional enclosed thermal current I_{the} (according to IEC 60947-1 and EN 60947-5-1) ($\theta \leq 40^\circ\text{C}/104^\circ\text{F}$)	10A
Short-circuit protection - gG type fuses	10A
Rated operational current	
I_e / AC-15 - acc.to IEC 60947-5-1	
24VAC (50/60Hz)	10.0A
130VAC (50/60Hz)	5.5A
230VAC (50/60Hz)	3.1A
240VAC (50/60Hz)	3.0A
400VAC (50/60Hz)	1.8A
- acc.to UL 508, CSA C22 n°14	A 600
I_e / DC-13 - acc.to IEC 60947-5-1	
24VDC	2.8A
110VDC	0.6A
250VDC	0.27A
- acc.to UL 508, CSA C22 n°14	Q 600
Electrical durability (according to IEC 60497-5-1 annex C) - max. switching frequency Cycles/h - load factor	Utilization categories AC-15 and DC-13 (see curves and value below) 3600 0.5
Connecting data of contact blocks Connecting terminals Connecting capacity 1 or 2 x mm ² / AWG Terminal marking	M3.5 (+,-) pozidriv 2 screw with cable clamp 0.5mm ² / AWG 20 to 2.5mm ² / AWG 14 According to EN 50013
Positivity	Contacts with positive opening operation as per IEC 60947-5-1 chapter 3

Diagram for snap action contact:

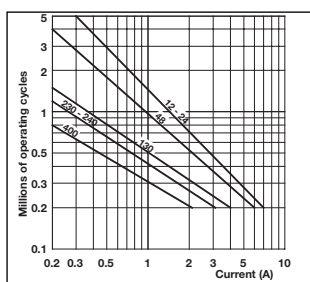
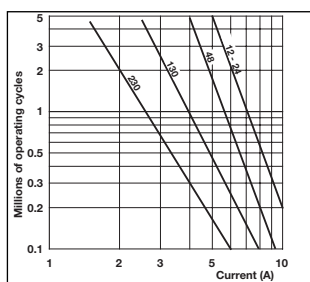


Diagram for slow action contact:



Electrical durability for DC-13 utilization category

Power breaking for a durability of 5 million operating cycles		
	Snap action	Slow action
Voltage 24V	9.5W	12W
Voltage 48V	6.8W	9W
Voltage 110V	3.6W	6W

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● Cable Gland

- P = one cable inlet PG13.5 cable gland
- M = one cable inlet M20x1.5 cable gland
- N = one cable inlet 1/2" NPT cable gland

▲ Contact block (Zb type)

S11 (1NO+1NC) Snap action	T11 (1NO+1NC) Non overlapping Slow action	O11 (1NO+1NC) Overlapping Slow action	T02 (2NC) Slow Action	T20 (2NO) Slow action
S02 (2NC) Snap action	T12 (1NO+2NC) Non overlapping Slow action	T21 (2NO+1NC) Non overlapping Slow action	T03 (3NC) Simultaneous Slow action	T30 (3NO) Simultaneous Slow action

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

Conformity (NC)	EN 50041	Plain steel plunger	PS31L- ● ▲ P0-T00
Max. Actuation speed	0.5m/s / 1.64ft/s	Code	
Min. force or torque	14N / 40Nm		
Weight	145.0g / 5.115oz		

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

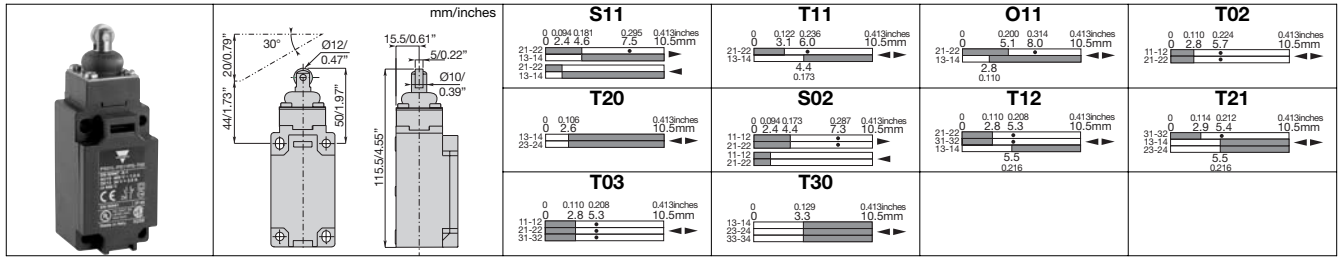
Conformity (NC)	EN 50041	Steel ball plunger	PS31L- ● ▲ PB-T00
Max. Actuation speed	0.5m/s / 1.64ft/s	Code	
Min. force or torque	14N / 40Nm		
Weight	145.0g / 5.115oz		

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

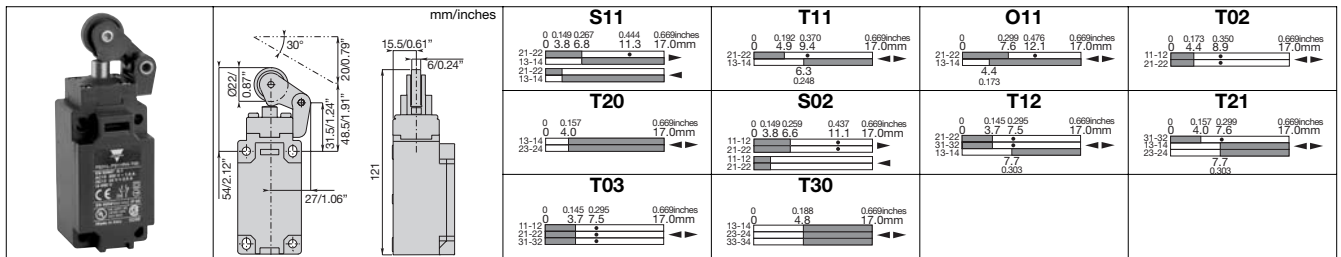
Conformity (NC)	EN 50041	Steel roller plunger	PS31L- ● ▲ PR-T00
Max. Actuation speed	0.5m/s / 1.64ft/s	Code	
Min. force or torque	14N / 40Nm		
Weight	150.0g / 5.291oz		

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

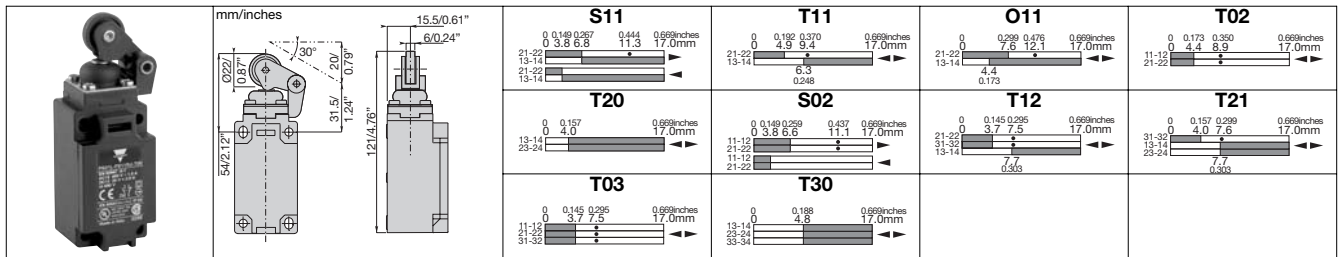
Conformity (NC)	EN 50041	Plain steel plunger with dust protection cup	PS31L- ● ▲ PH-T00
Max. Actuation speed	0.5m/s / 1.64ft/s	Code	
Min. force or torque	14N / 40Nm		
Weight	145.0g / 5.115oz		



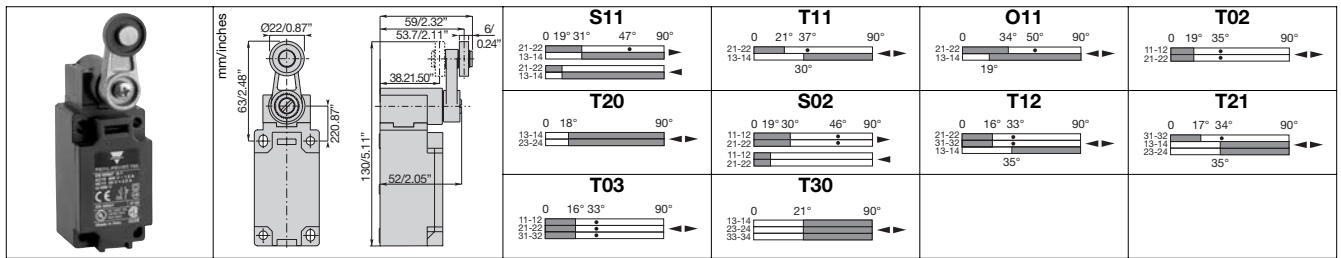
Conformity / (NC)	EN 50041 / (NC)	Steel roller plunger with dust protection cup
Max. Actuation speed	0.5m/s / 1.64ft/s	Code
Min. force or torque	14N / 40Nm	PS31L- [] [] PG-T00
Weight	150.0g / 5.291oz	



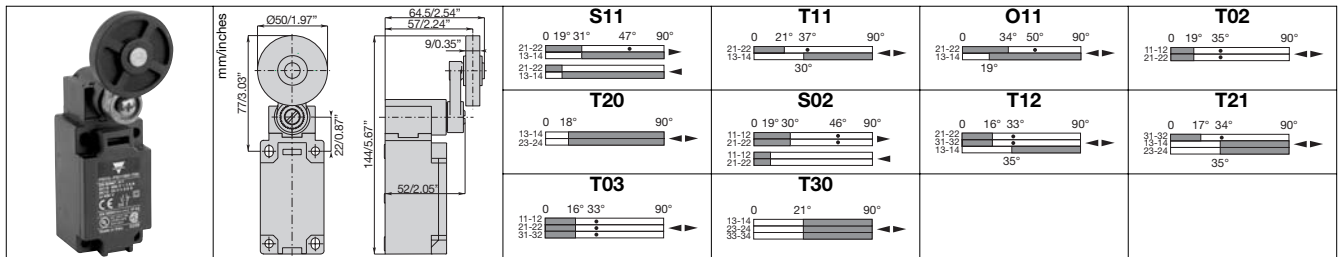
Conformity / (NC)	/ (NC)	One way lever
Max. Actuation speed	1.0m/s / 3.28ft/s	Code
Min. force or torque	8N / 30Nm	\varnothing 22 (0.87") nylon roller PS31L- [] [] RH-T00
Weight	185.0g / 6.526oz	\varnothing 22 (0.87") stainless steel roller PS31L- [] [] RH-T00
		\varnothing 22 (0.87") steel ball bearing PS31L- [] [] RH-T00



Conformity / (NC)	/ (NC)	One way lever with dust protection cup
Max. Actuation speed	1.0m/s / 3.28ft/s	Code
Min. force or torque	8N / 30Nm	\varnothing 22 (0.87") nylon roller PS31L- [] [] RJ-T00
Weight	180.0g / 6.349oz	\varnothing 22 (0.87") stainless steel roller PS31L- [] [] RJ-T00
		\varnothing 22 (0.87") steel ball bearing PS31L- [] [] RJ-T00



Conformity / (NC)	EN 50041 / (NC)	\varnothing22 (0.87") Roller lever
Max. Actuation speed	1.5m/s / 4.92ft/s	Code
Min. force or torque	0.15N / 0.30Nm	Nylon roller PS31L- [] [] RT-T00
Weight	200.0g / 7.055oz	Stainless steel roller PS31L- [] [] RS-T00
		Steel ball bearing PS31L- [] [] RO-T00



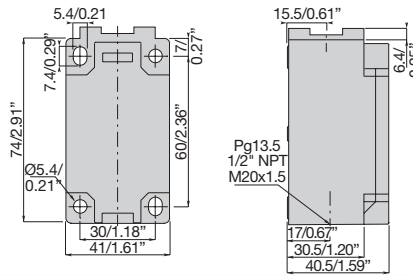
Conformity / (NC)	EN 50041 / (NC)	\varnothing50 (0.197") Rubber roller lever
Max. Actuation speed	1.5m/s / 4.92ft/s	Code
Min. force or torque	0.15N / 0.30Nm	PS31L- [] [] W0-T00
Weight	205.0g / 7.231oz	

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● Cable Gland

- P = one cable inlet PG13.5 cable gland
- M = one cable inlet M20x1.5 cable gland
- N = one cable inlet 1/2" NPT cable gland



▲ Contact block (Zb type)

S11 (1NO+1NC) Snap action		T11 (1NO+1NC) Non overlapping Slow action		O11 (1NO+1NC) Overlapping Slow action		T02 (2NC) Slow Action		T20 (2NO) Slow action	
S02 (2NC) Snap action		T12 (1NO+2NC) Non overlapping Slow action		T21 (2NO+1NC) Non overlapping Slow action		T03 (3NC) Simultaneous Slow action		T30 (3NO) Simultaneous Slow action	

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

Conformity / (NC)	/ (NC)	Plain steel plunger	
Max. Actuation speed	1.5m/s / 4.92ft/s	Code	PS31L- ● ▲ R1-T00
Min. force or torque	0.15N / 0.30Nm		PS31L- ● ▲ R2-T00
Weight	195.0g / 6.878oz		PS31L- ● ▲ R3-T00

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

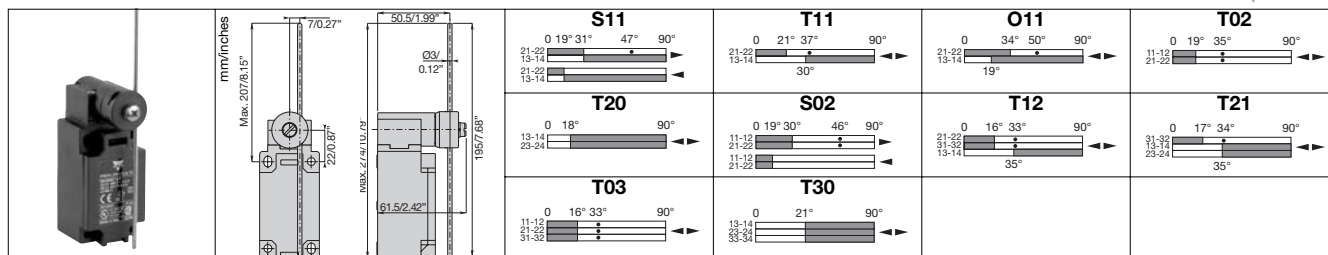
Conformity / (NC)	/ (NC)	Steel ball plunger	
Max. Actuation speed	1.5m/s / 4.92ft/s	Code	PS31L- ● ▲ W1-T00
Min. force or torque	0.15N / 0.30Nm		
Weight	205.0g / 7.231oz		

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

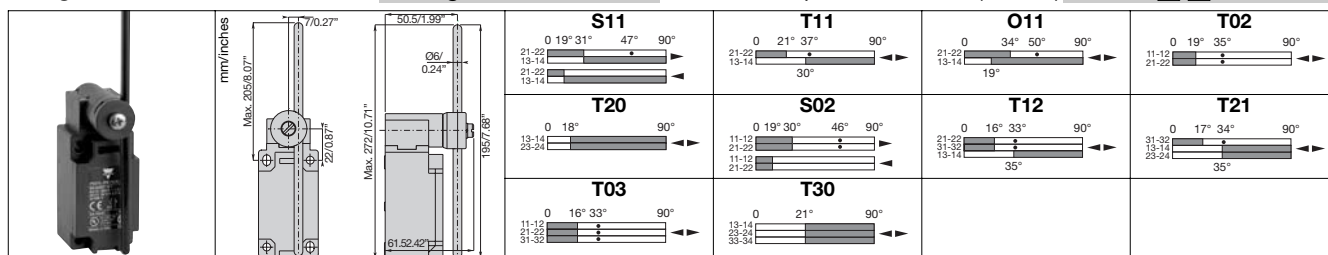
Conformity / (NC)	/ (NC)	Steel roller plunger	
Max. Actuation speed	1.5m/s / 4.92ft/s	Code	PS31L- ● ▲ LB-T00
Min. force or torque	0.15N / -		
Weight	190.0g / 6.702oz		

		S11	T11	O11	T02
		T20	S02	T12	T21
		T03	T30		

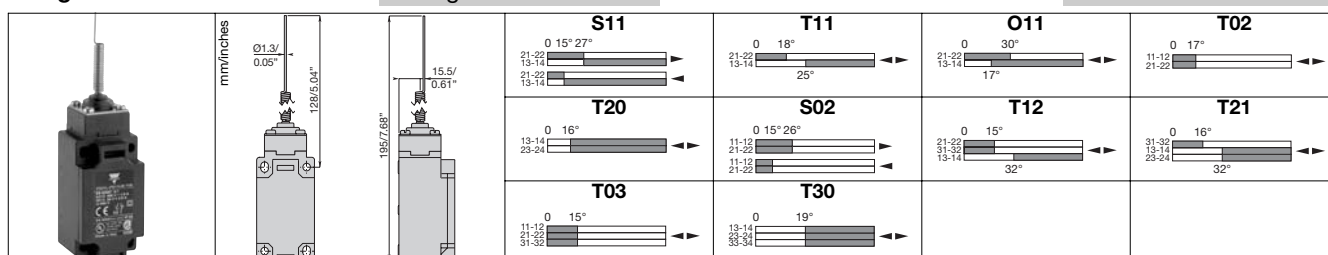
Conformity / (NC)	/ (NC)	Plain steel plunger with dust protection cup	
Max. Actuation speed	1.5m/s / 4.92ft/s	Code	PS31L- ● ▲ LZ-T00
Min. force or torque	0.15N / -		
Weight	195.0g / 6.878oz		



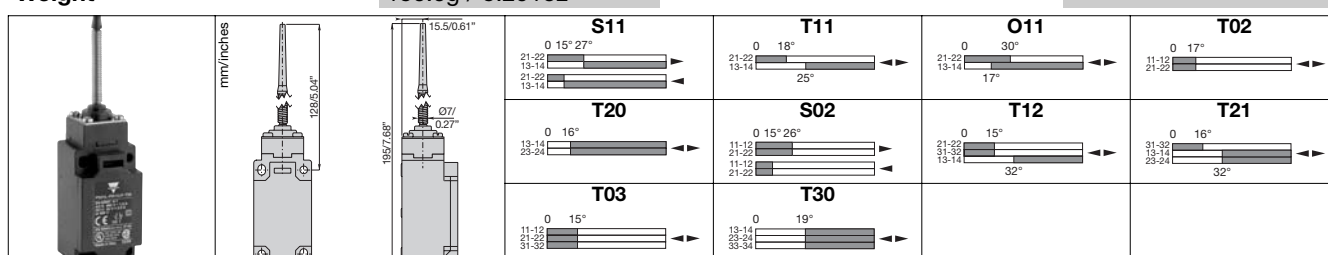
Conformity / (NC)	/	Adjustable rod lever
Max. Actuation speed	1.5m/s / 4.92ft/s	Code Stainless steel rod Ø3 (0.12") PS31L-●▲LA-T00
Min. force or torque	0.15N / 0.30Nm	Fiberglass rod Ø3 (0.12") PS31L-●▲LF-T00
Weight	185.0g / 6.526oz	Square steel rod □3 (□0.12") PS31L-●▲L3-T00



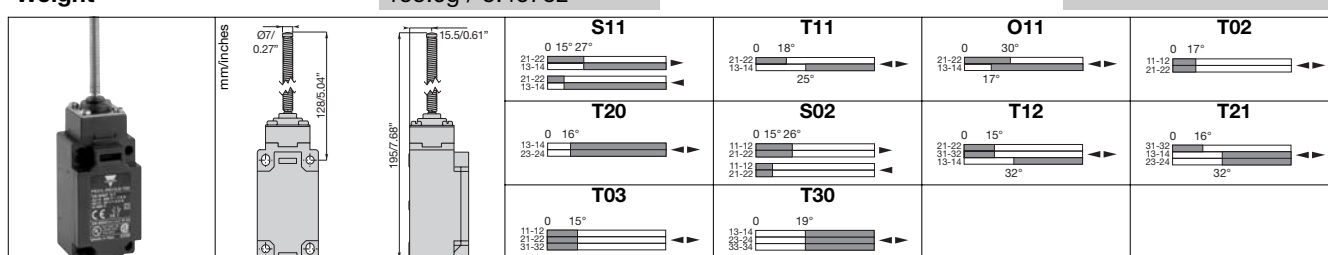
Conformity / (NC)	/	Adjustable Ø6 (0.24") rod lever
Max. Actuation speed	1.5m/s / 4.92ft/s	Code Nylon rod PS31L-●▲LN-T00
Min. force or torque	0.15N / 0.30Nm	Fiberglass rod PS31L-●▲LG-T00
Weight	185.0g / 6.526oz	



Conformity / (NC)	/	Stainless steel spring multidirectional actuator
Max. Actuation speed	1.0m/s / 3.28ft/s	Code PS31L-●▲LW-T00
Min. force or torque	0.18N / -	
Weight	150.0g / 5.291oz	



Conformity / (NC)	/	Multidirectional nylon actuator with stainless steel spring
Max. Actuation speed	1.0m/s / 3.28ft/s	Code PS31L-●▲LP-T00
Min. force or torque	0.18N / -	
Weight	155.0g / 5.467oz	



Conformity / (NC)	/	Stainless steel spring multidirectional actuator
Max. Actuation speed	1.0m/s / 3.28ft/s	Code PS31L-●▲LS-T00
Min. force or torque	0.18N / -	
Weight	160.0g / 5.644oz	

Utilization precautions

Plain plunger

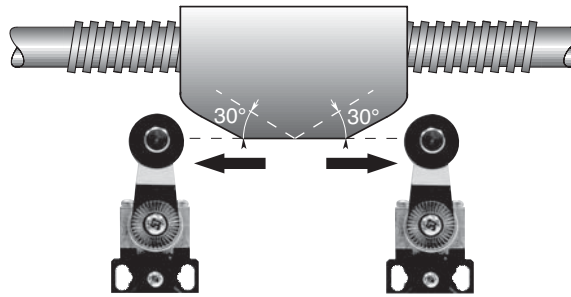


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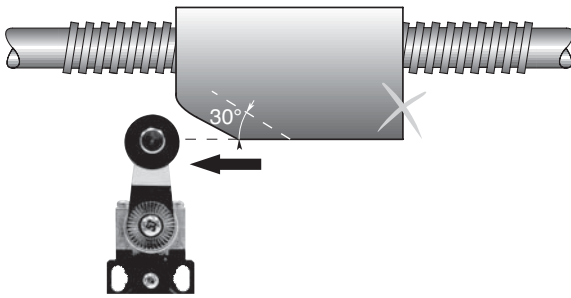


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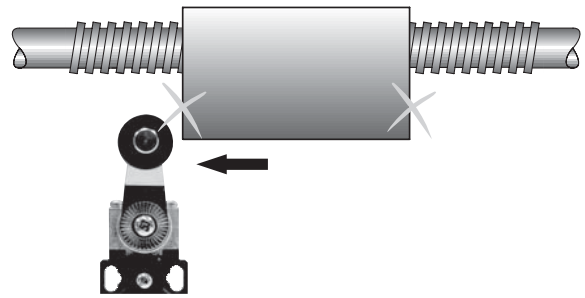
Roller plunger or Roller lever



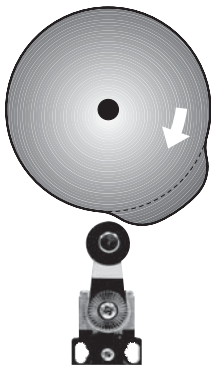
Correct



Incorrect



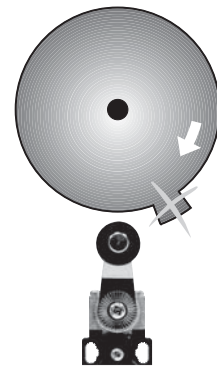
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Correct



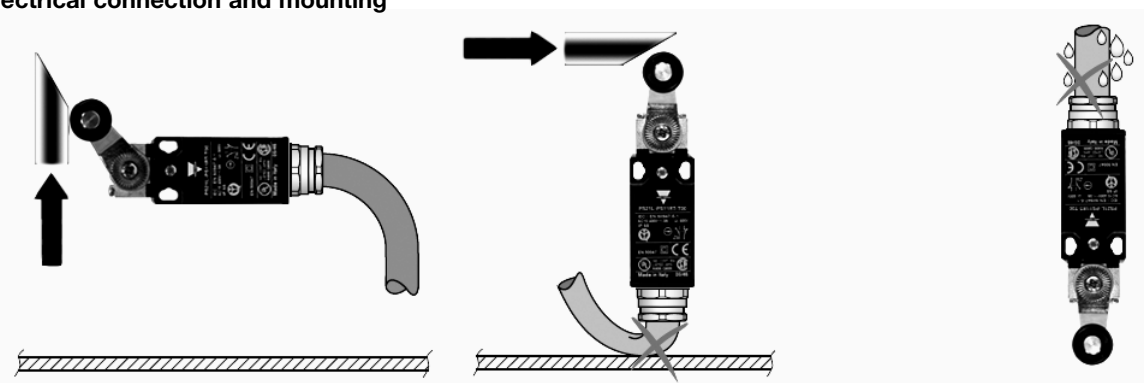
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Incorrect

Utilization precautions

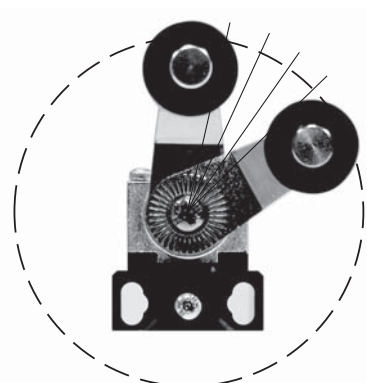
Electrical connection and mounting



Correct Incorrect Incorrect


Adjustement

Position adjustment of lever



Free position adjustment
9 in 9° of lever

Position adjustment of lever and head



Different operating of head

